

foliorum medio ornatis recedit.

This variety differs from the typical form of the species in its very diminutive stature, mostly only 2.5--5.5 cm. tall when in full anthesis, the stems decidedly elongated and bearing a rosette of leaves exactly similar to the basal rosette at or somewhat above the midpoint.

The type of the variety was collected by Otto Huber (no. 1684) on a small savanna in the woods around the southwest base of Cerro Yapacana, 66°50' E., 3°40' N., at about 100 m. altitude, between February 14 and 28, 1978, and is deposited in my personal herbarium. The collector notes: "Hierba diminuta de unos 5--7 cm de alto, muy común en esta sabana. Cabezuelas color blanco-grisáceo....Dept. Atabapo, cabecera del Caño Cotúa hasta el pié occidental del Cerro Yapacana.... Sabana arenosa...sobre terrenos planos parcialmente inundados durante la época de lluvias."

ADDITIONAL NOTES ON THE GENUS *VITEX*. XII

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VITEX Tourn.

Additional & emended bibliography: D. Dietr., Syn. Pl. 3: 610--612. 1843; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 132 & 169--172 (1894) and ed. 1, 4 (3a): 383. 1897; Engl., Syllab., ed. 2, 178 & 214 (1898), ed. 3, 188 & 233 (1903), ed. 4, 189 & 207 (1904), ed. 5, 193 & 247 (1907), and ed. 6, 198 & 253. 1909; Gilg in Engl., Syllab., ed. 7, 314 & 386 (1912) and ed. 9 & 10, 340 & 419. 1924; Diels in Engl., Syllab., ed. 11, 339 & 418. 1936; Deodikar & Thakar, Bull. Apicult. Lab. Mahabal. 1: 1--6. 1955; F. H. Wang, Pollen Gr. China. 1960; Chaubal & Deodikar, Indian Bee Journ. 27: 1--28. 1965; Palacios, An. Esc. Nac. Cienc. Biol. Mex. 16: 41--169. 1968; B. B. Mukherjee, Veget. Hist. South. West Beng. [thesis]. 1969; Assemien, Étud. Comparat. Fl. Act. Quat. Vég. Afr. Ouest [thesis]. 1971; Mukhopadhyay, Pollen Morph. Verb. [thesis]. 1971; Serbanescu-Jitariu & Mitroiu, Act. Bot. Hort. Bucurest. 1972-73: 105, 108, 109, 116, & 119, pl. 1, fig. 5. 1973; Shimakura, Spec. Publ. Osaka Mus. Nat. Hist. 5: 1--60. 1973; Thanikaimoni, Inst. Franç. Pond. Trav. Sect. Scient. Tech. 12 (2): 130. 1973; Fredoux, Assoc. Palynol. Lang. Franç. Trav. Docum. Géogr. Trop. 16. 1974; Sowunmi, Grana 13: 145--186. 1974; Kooiman, Act. Bot. Neerl. 24: [459], 461, & 462. 1975; López-Palacios, Bol. Soc. Venez. Cienc. Nat. 31: [353]. 1975; López-Palacios, Revist. Fac. Farm. Univ. Andes 15: 10 & 94--102, fig. [18]--[21]. 1975; Menninger, Color Sky 10, 47, & 260. 1975; Meylan & Butterfield, N. Zeal. Journ. Bot. 13: 4. 1975; Mold., Phytologia 29: 512 (1975), 30: 512 (1975), 31: 336, 376, 380, 383, 387--390, 392, 400, 403, 407, & 412 (;975), and 32: 338. 1975; Molina R., Ceiba 19: 96. 1975; Ramachandran Nair, Ramesh., & Sankara Subramanian, Curr. Sci. India 44: 214--216. 1975; Saoji, Botanique 6: 253--260. 1975; Seabrook, Shrubs Your Gard. 130 &

[145]. 1975; Sharma, Bull. Bot. Soc. Bengal 29: 143. 1975; Timbal 1975: 85. 1975; Wyman, Gard. Journ. 25: [45] & 46. 1975; Zimmerm. & Ziegler in Zimmerm. & Milburn, Transp. Pl. 1 [Pirson & Zimmerm., Encycl. Pl. Physiol., ser. 2, 1]: 502--503. 1975; Anon., Biol. Abstr. 61: Acl.733. 1976; Anon., Forest. Abstr. 37: 555 (1976) and 37 (10): 9. 1976; L. H. & E. Z. Bailey, Hortus Third 1149 & 1161--1162. 1976; Benjamin, Israel Minist. Agric. Agr. Res. Org. Div. Ornament. Spec. Publ. 57: 12. 1976; Bultman & Southwell, Biotropica 8 (2): 79. 1976; Cambie, Journ. Roy. Soc. N. Zeal. 6 (3): 332. 1976; Corner, Seeds Dicot. 1: 276. 1976; Faden, Phytologia 34: 145. 1976; Finol U., Act. Bot. Venez. 11: 25, 29, 46, 48, 50, 53, & 55. 1976; Fosberg, Rhodora 78: 113. 1976; Gade, Journ. Biogeogr. 4: 275. 1976; Greuter, Candollea 31: 222. 1976; Karavaev, Vestn. Mosk. Univ. Biol. Pochvoved. 31: 97--99. 1976; Keys, Chinese Herbs 295 & 388. 1976; Lakela, Long, Fleming, & Genelle, Pl. Tampa Bay, ed. 3 [Bot. Lab. Univ. S. Fla. Contrib. 73:] 116--117, 154, & 183. 1976; Laurence & Mohammed, Journ. Agr. Soc. Trin. Tob. 76: 345. 1976; Livingstone, Journ. Nat. Hist. 18: 529--544. 1976; Long & Lakela, Fl. Trop. Fla., ed. 2, 733, 738--739, 934, & 961. 1976; López-Palacios, Revist. Fac. Farm. Univ. Andes 17: 50--51. 1976; Malag. Heras, Act. Phytotax. Barcin. 18: 19 & 108. 1976; F. G. Mey., Journ. Arnold Arb. 57: 120. 1976; Mold., Phytologia 32: 512 (1976), 33: 375 & 512 (1976), and 34: 20, 246, 248, 249, 252, 254, 256, 257, 259, 261, 264, 266--268, 270, 279, & 512. 1976; Ray & Majumdar, Econ. Bot. 30: 319. 1976; Saxena & Khotale, Journ. Bombay Nat. Hist. Soc. 73: 29. 1976; Soukup, Biota 11: 2 & 19--21. 1976; Stargardt, Journ. Biogeogr. 4: 225. 1976; Srivastava, Fl. Gorak. 252 & 259. 1976; S. & D. Talalaj, Bull. Biol. Res. Cent. Baghdad 7: 32--42. 1976; Thanikaimoni, Inst. Franç. Pond. Trav. Sect. Scient. Tech. 13: 246, 328, 371, & 384. 1976; E. H. Walker, Fl. Okin. South. Ryuk. 883 & 893--894. 1976; Austin, Coleman-Marvis, & Richardson, Fla. Scientist. 40: 337. 1977; Batson, Gen. East. Pl. 146, 147, & 203. 1977; Clay & Hubbard, Haw. Gard. Trop. Shrubs 185 & 294. 1977; Dittus, Biotropica 9: 282. 1977; "D. T. C.", Biol. Abstr. 64: 213. 1977; Faden, Phytologia 34: 145. 1977; Fundter & Wisse, Meded. Landbouwhogsch. Wagen. 77 (9): 205--209. 1977; "J. S. J.", Biol. Abstr. 63: 1853. 1977; Katyuzhanskaya, Khim. Priir. Soedin. Tashk. [6]: 763--767. 1977; Kodanda & E. & D. Venkata Rao, Biol. Abstr. 62: 6284. 1977; Kodanda & E. & D. Venkata Rao, Indian Journ. Pharm. 39: 41. 1977; Kew Bull. Addit. Ser. 5: 309, map 152. 1977; Lebrun & Stork, Ind. Cart. Répert. Pl. Vasc. Afr. 133. 1977; Lewis & Elvin-Lewis, Med. Bot. 257, 332, & 514. 1977; Livingstone, Biol. Abstr. 63: 2659. 1977; López-Palacios, Fl. Venez. Verb. 9--11, 22, 579--630, 639, & 646--654. 1977; McGregor & al., Fl. Great Plains 569. 1977; Meher-Homji, Feddes Repert. Spec. Nov. 88: 120 & 122. 1977; A. L. Mold., Phytologia 36: 87. 1977; Mold., Biol. Abstr. 64: 2438 & 6574. 1977; Mold., Phytologia 35: 277, 419, & 512 (1977), 36: 32, 33, 35, 36, 38, 40, 41, 45, 48, 164, 502, & 512 (1977), and 37: 275 & 512. 1977; Paradis & Hounnon, Bull. Mus. Natl. Hist. Nat., ser. 3, 503 [Bot. 34]: 183. 1977; Poppeton, Shuey, & Sweet, Fla. Scientist. 40: 384. 1977; Speta, Candollea 32: 142, 146, & 155, fig. 2x. 1977; B. C. Stone, Handerson's Malay. Wild Fla. Append. 16. 1977; Subramanian & Kalyani, Indian Forest. 103: 113 & 117. 1977;

Tupas & Sajise, *Kalikasan* 6: 233. 1977; Anon., *Roy. Bot. Gard. Kew Lib. Curr. Awaren.* 8: 21 (1978) and 9: 23. 1978; Ching-Wei, *China Reconstr.* 27 (2): 4. 1978; Croat, *Fl. Barro Colorado* 40 & 732. 1978; Gibson, *Wild Fls. Natal* 92 & 93, pl. 92, fig. 8, & pl. 93, fig. 1. 1978; Gomas, *El-Moghazy*, Halim, & El-Sayyad, *Ornament. Hort.* 4: 825. 1978; Gomas, *El-Moghazy*, Halim, & El-Sayyad, *Pl. Med.* 33: 277. 1978; Gray & DeZeeuw, *Internat. Assoc. Wood Anat. Bull.* 2/3: 47. 1978; Heathcote in Heywood, *Flow. Pl. World* 237, fig. 3. 1978; Hsiao, *Pl. Taiwan* 4: 432. 1978; Khosla & Sareen, *Indian Journ. Forest.* 1: 174. 1978; Kurup, *Journ. Bomb. Nat. Hist. Soc.* 75: 325, 329, & 332. 1978; Lawton, *Journ. Ecol.* 66: 183, 188--190, & 193. 1978; A. L. Mold., *Phytologia* 41: 80. 1978; Mold., *Biol. Abstr.* 65: 6769. 1978; Mold., *Phytologia* 38: 178, 307--308, & 511 (1978) and 39: 424 & 512. 1978; Mound & Halsey, *Whitefly World* 78, 86, 98, 100, 115, 123, 137, 207, 305, & 314. 1978; Odebiyi & Sofowora, *Lloydia* 41: 245. 1978; Perkins & Payne, *Guide Poison. Pl. Fla.* [Fla. Coop. Ext. Serv. Inst. Food Agric. Sci. Circ. 441:] [53] & [66]. 1978; Pirone, *Diseases Pests Ornament. Pl.*, ed. 5, 524. 1978; Reitz, Klein, & Reis, *Proj. Madeira S. Catar.* 42 & 86. 1978; Richards, *Bot. Soc. Am. Misc. Ser. Publ.* 156: 33. 1978; Sharma, Shetty, Vivekan., & Rathak., *Journ. Bomb. Nat. Hist. Soc.* 75: 16. & 33. 1978; R. F. Sm., *Act. Bot. Venez.* 13: 186, 208, & 240. 1978; Sprangers & Balasubram., *Trop. Ecol.* 19: post 92. 1078; Steyerm. & Huber, *Fl. Avila* 861, [865], & 868, fig. 301b. 1978; St. John, *Phytologia* 39: 317. 1978; Subramanian & Misra, *Indian Journ. Chem/ Sect. B Org. Chem.* 16: 615--616. 1978; S. & D. Talalaj, *Biol. Abstr.* 65: 4710. 1978; D. E. Clark, *Sunset New West. Gard. Book*, ed. 4, imp. 2, 498. 1979; Jones & Luchsinger, *Pl. Systemat.* 301--302. 1979; Katyuzhanskaya, *Biol. Abstr.* 67: 5013. 1979; A. L. Mold., *Phytologia* 41: 302. 1979; Mold., *Phytologia* 41: 511 (1979), 42: 512 (1979), 43: 252, 272, & 512 (1979), and 44: 134 & 143--163. 1979.

In Menninger's work on flowering vines (1970) the index indicates that *Vitex* is listed on p. 369, but actually it is the unrelated genus *Vitis* (*Vitaceae*) that is there discussed. Similarly, items 9635, 9686, & 9902 cited by Farnsworth (1970) as applying to *Vitex* actually apply to *Vitis*. The Endlicher (1838) reference in the bibliography above is often cited as "1836--1856", but the pages involved here were actually issued in 1838. Biological Abstracts (1977) erroneously spells the surname of R. B. Faden (1976) as "Raden". The Foreman (1972) publication bears the erroneous date "1971" on its titlepage. The index in the work by Pandeya, Puri, & Singh (1968) indicates a mention of *Vitex* on p. 29, but I fail to find it on that page. Similarly, the "p. 121" reference in the Kobayashi work (1970) appears to be erroneous.

Brown (1954) informs us that "*vitex*, *-icis*" is the classical Latin name for the chastetree native to Italy, *Vitex agnus-castus* L. Wang (1961) states that plants of this genus, along with *Corylus*, *Ostryopsis*, and *Deutzia*, cover great expanses of the mountain slopes and foothills in the deciduous broadleaf forests of the northern provinces of China.

Miejer (1968) asserts that the leaves of *Vitex* are without oil-glands, but he surely did not examine the leaves of a sufficient number of species. The chromosome number for the genus is reported as

x = 6 or 8. Martin (1946) reports that the seeds of *Vitex* contain endosperm. Gibbs (1974) reports the presence of agnuside (an aucubin-like glucoside) and aucubin, while saponins and tannins are absent or probably so, shikimic acid is present, but L-bornesitol is absent. Raffaaf (1970) reports the presence of vitricene ($C_{17}H_{15}NO_3$) and nishindine ($C_{15}H_{21}NO$).

Huang (1972) describes the pollen for the genus as "Grains 3-colpate; prolate to prolate-spheroidal; 27--40 x 18--33 μ ; amb circular-lobate; exine 2 μ thick; tectum with scabrate processes; sexine with OL-pattern; nexine as thick as sexine". In a genus of 400 taxa as now recognized one must wonder how reliable these descriptions are when given for the genus as a whole. Voss (1895) considered the genus as one of only 60 species in "wärmeren Gegenden"; Ohwi (1965) regarded it as containing 100 species "chiefly in the Tropics, few in temperate regions of Europe and e. Asia". Jones & Luchsinger (1979), probably due to a stenographic error, give "3" as the number of species in the genus! The genus, according to Savage (1945), is genus number 811 in the Linnean Herbarium. Jack (1820) comments rather unnecessarily that the only other genus in the *Verbenaceae* with compound leaves [known to him] is the genus *Peronema*, and that this is "abundantly distinct". Actually, at least 5 other genera in the family have compound leaves: *Petraeovitex*, *Petitia*, *Pseudocarpidium*, *Teijsmanniodendron*, and *Viticipremna*, albeit in some cases 1-foliolate.

Sharma (1975) reports an unidentified species of *Vitex* cultivated as a hedge in the Punjab -- this is probably one of the varieties of *V. trifolia*. In 1849 Hooker and Benthham regarded the "African oak" and "African teak" of Africa as probably members of the genus *Vitex*, but in this they were in error; the latter, at least, actually is *Oldfieldia africana* Benth. & Hook. f. in the *Euphorbiaceae*.

The genus *Tomex* L., sometimes cited in the synonymy of *Vitex*, actually belongs, instead, in that of *Callicarpa* L. It is of interest to note, in passing, that Caruel (1884) is among those botanists who correctly accredited the name *Vitex* to Tournefort, rather than to Linnaeus, who merely adopted it.

Dalla Torre & Harms (1963), regarding it as a genus of 100 species, divide *Vitex* as follows:

Sect. 1. *Agnus castus* Endl.

Subsect. 1. *Terminales* Briq.

Subsect. 2. *Axillares* Briq.

Subsect. 3. *Glomerulosae* Briq.

Sect. 2. *Pyrostoma* Schau.

Sect. 3. *Chrysomallum* Schau.

Sect. 4. *Glossocalyx* Clarke

Capuron (1972, p. 45) refers to a Section "*Laniculatae*", apparently a typographic error for *Paniculatae* Schau.

It is also of interest to note that Dietrich (1837) places *Vitex* in his Family 57, *Viticeae*, and not in Family 58, *Verbenaceae*.

Sweet (1839) has pointed out that *Wallrothia* is a valid genus in the *Ammiaceae*, so the homonym proposed in the *Verbenaceae*, if maintained as a separate genus, must be renamed.

Langsdale-Brown and his associates (1964) list several unidentified species from Uganda that inhabit the *Butyrospermum-Hyparrhenia*

savannas, *Acacia-Albizzia-Panicum-Chloris* savannas, *Albizzia-Combretum* woodlands, *Vitex-Phyllanthus-Sapium-Terminalia* woodlands, *Combretum-Hyparrhenia* savannas, *Borassus-Hyparrhenia rufa* palm savannas, *Borassus-Hyparrhenia* dissolute palm savannas, *Albizzia-Combretum-Terminalia-Hyparrhenia rufa* savannas, and *Hyparrhenia* grass savannas derived from *Butyrospermum* savannas in Africa. Kurz (1870 has listed another unidentified species from the Andaman Islands. Kotschy (1865) lists an unidentified species of the *Chrysomallum* section from Ethiopia, Irvine (1970) lists two from Gold Coast, Puri (1960) lists one from India, Foreman (1972) one from New Guinea, Jaffré (1974) one from New Caledonia, and Vergiat (1970) describes two from Ubangi which "Pour faire bonne pêche les Sangos frottent leurs filets avec des feuilles de cette plante. Les petites fourmis hantant les rameau sont utilisées comme appât pour la pêche, on les répand sur l'eau. La poudre obtenue en pilant les fruits avec les fourmis qui vivent sur cette plante est vénéneuse. Antidote: décoction de racines de... *Bauhinia thonningii*". Another species, unidentified, "C'est l'écorce brûlée de cette espèce qui est utilisée, par les indigènes islamisées de race Haoussa, pour la fabrication de leur encre, les cendres sont diluées dans de l'eau natronée".

Vernacular names reported for the genus as a whole or for unidentified members of it include: "hamagō zoku" (in Japan), "Keuschbaum", "Keusch-lamm", and "Mönchspfeffer", as well as "Müllen" (in Germany), "rēnu-ka-bij", "shambhāloo-ka-bij", and "tukm-i-panjangusht" (in India), "aceituma" and "totumillo" (in Venezuela), "afetewa" and "akwakora gyahina" (in Gold Coast), "burlya", "deniya", "gbabili", "oko alya", and "tela" (in Africa), "wallrothia" (in England), "muxillo-xylo" (in Angola), "kachinori-pini" (in Peru), and "pala bikunda" (in western Africa).

Aristeguieta (1973) describes the Venezuelan members of the genus as very ornamental and "bastante resistentes", suitable as street and park trees. Dymock (1884) says of an unidentified species of *Vitex* in western India that the "small fruit is considered by native physicians to be astringent, resolvent and deobstruent, and useful for removing obstructions of the brain and liver. It is also given in enlargement of the spleen and dropsy....The drug is imported from Persia". DeWit (1967) says that the genus is reputedly aphrodisiac -- a curious claim since the best-known species, *V. agnus-castus*, is widely regarded as an anti-aphrodisiac!

Hartwell (1971) reports an unidentified species in Angola is used to treat tumors of the breast and another is used in Peru to treat cancerous ulcers. DeWildeman (1920) reports an unidentified species in western Africa whose wood is used to make wooden utensils and in other woodwork.

Vitex species are attacked by the fungi, *Meliola viticicola* Hansf. (in Zaire) according to Hansford (1961), based on *Hendrickx 2390*, *M. paraensis* P. Henn. (in Brazil), also according to Hansford, based on *Huber 4* at Stockholm, *M. cookeana* Speg. (in Zaire), also according to Hansford, based on *Vanderyst 38577, 43953, 44309, & 44340*, *Leptosphaeria casta* according to Anon. (1969), *Ciferriella domingensis*, *Meliola campylopoda*, *Mycosphaerella viticis*, *Olivea acitula*, *Phoma viticicola*,

Pleurotus guaraniticus, *Pucciniastrum clemensiae*, and *Vizella grandis* according to Anon. (1957), a leaf-spot, *Cercospora weberi*, according to Pirone (1978), another leaf-spot, *C. viticis* (in Louisiana and Texas), and a root-rot, *Phymatotrichum omnivorum* (in Texas) according to Westcott (1971), and the white-flies, *Aleurotrachelus viticis* Corbett (in Malaya), *Dialeurodes dicksoni* (in Malaya), and *D. vitis* Corbett (in Malaya).

The Baileys (1976) refer to the plants of this genus as "vitexes" and note that the cultivated ones "do well in any good soil. Propagated by seeds in spring, layers, and greenwood cuttings under glass".

Anatomical studies made by Gray & DeZeeuw are reported by Richards (1978) as follows: "The secondary xylem anatomy of the genus *Vitex* has been studied comparatively to prepare a more precise definition of the structural variation within the genus, to find possible relationships of anatomical structure to geographical regions, and to determine the possible cause or causes of the reported slow air-drying of the wood of several species in this genus. The material examined was worldwide in origin and more extensive than for any of the previous regional studies. Anatomical evidence obtained from this investigation corroborates existing data that the wood structure of *Vitex* is essentially homogeneous. The only exception is a slight trend for segregating African species by the more common presence of multiperforate perforation plates as well as low density and generally pale colored wood. Multiperforate and scalariform perforation plates in vessel elements were observed in many species, in contrast to previous reports which indicated that these specialized perforations were very rare in *Vitex*. The presence of multiple calcium crystals per parenchyma cell in a majority of species studied is a possible diagnostic character for the genus, while the presence of silica sand and specialized cell wall sculpturing can be used for diagnostic features for certain species within the genus. Unusual amounts of starch deposits observed in the septate fibers of the heartwood in over half of the species studied is suggested as a diagnostic character for the genus and as a possible cause for the reported slow drying characteristics for these species."

The Helfer 304, distributed as a species of *Vitex*, actually is one of *Buddleia* (*Buddleiaceae*), while Kostermans 24039 is *Clerodendrum serratum* (L.) Moon, Fosberg & Mueller-Dombois 50142 is *Glossocarya scandens* (L. f.) Trimen, Prance, Rodrigues, Ramos, & Farias 8339 & 8344 are *Metradorea* sp. (*Rutaceae*), T. Anderson 133 is *Peronema canescens* Jack, Oldham 679 is *Premna microphylla* Turcz., T. Anderson 183 and Griffith 6065/1 are *Teijsmanniodendron coriaceum* (C. B. Clarke) Kosterm., E. D. Merrill 2852 is *Viticipremna philippinensis* (Turcz.) H. J. Lam, Bernardi 3360 and R. V. Moran 7742 are in the *Bignoniaceae*, Frodin NGF.26450 is in the *Rubiaceae*, and T. Anderson 131, Claussen s.n. [Minas Gerais], G. P. Cooper 111, Daniel & Tom  s 3368, Gilbert 2168, Goodland 389, Herb. Richard s.n., Hinton 16235, and Nadeaud s.n. are not verbenaceous.

To the lists of taxa excluded from the genus previously published by me the following are to be added or emended:

Vitex aherniana Merr., Bur. Govt. Lab. Manila Publ. 6: 18. 1904 =
Teijsmanniodendron ahernianum (Merr.) Bakh.

- Vitex ahernianum* Merr. ex Mold., Phytologia 5: 258, in syn. 1955 = *Teijsmanniodendron ahernianum* (Merr.) Bakh.
- Vitex ?bantamensis* Koord. & Val., Bijdr. Booms. Java 7: 210. 1900 = *Vavaea bantamensis* (Koord. & Val.) Koord. & Merr., Meliaceae
- Vitex caribaea* Hook. & Arn. ex Schau. in A. DC., Prodr. 11: 696, in syn. 1847 = *Vitis californica* Benth., Vitaceae
- Vitex bahiensis* Schau. in A. DC., Prodr. 11: 687. 1847 = *Arrabidaea bahiensis* (Schau.) Sandw. & Mold., Bignoniaceae
- Vitex bankae* H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 62. 1921 = *Teijsmanniodendron ahernianum* (Merr.) Bakh.
- Vitex bogariensis* H. J. Lam ex Mold., Alph. List Inv. Names 58, in syn. 1942 = *Teijsmanniodendron ahernianum* (Merr.) Bakh.
- Vitex bogoiensis* H. J. Lam ex Mold., Phytologia 28: 465, in syn. 1974 = *Teijsmanniodendron ahernianum* (Merr.) Bakh.
- Vitex bogoniensis* H. J. Lam ex Mold., Fifth Summ. 2: 714, in syn. 1971 = *Teijsmanniodendron ahernianum* (Merr.) Bakh.
- Vitex bogoriensis* H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 60. 1921 = *Teijsmanniodendron ahernianum* (Merr.) Bakh.
- Vitex clarkeana* Gamble in King & Gamble, Journ. Asiat. Soc. Beng. 74: 845. 1908 = *Teijsmanniodendron hollrungii* (Warb.) Kosterm.
- Vitex clarkeana* King & Gamble ex Mold., Phytologia 5: 258, in syn. 1955 = *Teijsmanniodendron hollrungii* (Warb.) Kosterm.
- Vitex coriacea* C. B. Clarke in Hook. f., Fl. Brit. India 4: 586. 1885 = *Teijsmanniodendron coriaceum* (C. B. Clarke) Kosterm.
- Vitex curranii* H. J. Lam, Verbenac. Malay. Arch. 207. 1919 = *Teijsmanniodendron ahernianum* (Merr.) Bakh.
- Vitex curtifrutescens* Elm., Leafl. Philip. Bot. 8: 2873. 1915 = *Claoxylon* sp., Euphorbiaceae
- Vitex hollrungii* Warb., Engl. Bot. Jahrb. 18: 208. 1894 = *Teijsmanniodendron hollrungii* (Warb.) Kosterm.
- Vitex holophylla* Baker, Kew Bull. Misc. Inf. 1896: 25. 1896 = *Teijsmanniodendron holophyllum* (J. G. Baker) Kosterm.
- Vitex japonica* Farnsworth, Pharmacog. Titles 5 (4): xii, sphalm. 1970 = *Vitis japonica* Thunb., Vitaceae
- Vitex flabelliflora* Hall. f., Meded. Rijks Herb. Leid. 37: 50. 1918 = *Teijsmanniodendron bogoriense* Koord.
- Vitex koordersii* H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 64. 1921 = *Teijsmanniodendron pteropodum* (Miq.) Bakh.
- Vitex lanceolata* Turcz., Bull. Soc. Nat. Mosc. 36 (2): 224. 1863 = *Psychotria sarmentosa* Blume, Rubiaceae
- Vitex novae pommeraniae* Warb. ex K. Schum. & Lauterb., Fl. Deutsch. Schutzgeb. Sudsee 524. 1900 = *Viticipremna novae-pommeraniae* (Warb.) H. J. Lam
- Vitex novae-pommeraniae* Warb., Engl. Bot. Jahrb. 13: 429. 1891 = *Viticipremna novae-pommeraniae* (Warb.) H. J. Lam
- Vitex novo-guineensis* Kaneh. & Hatus., Bot. Mag. Tokyo 56: 116, fig. B. 1942 = *Teijsmanniodendron novo-guineense* (Kaneh. & Hatus.) Kosterm.
- Vitex novoguineensis* Kaneh. & Hatus. apud Kosterm., Reinwardtia 1: 103, in syn. 1951 = *Teijsmanniodendron novo-guineense* (Kaneh. & Hatus.) Kosterm.

- Vitex peralata* Miq., Fl. Ind. Bat. Suppl. Sum. 242 & 567. 1862 = *Teijsmanniodendron pteropodum* (Miq.) Bakh.
- Vitex philippinensis* J. J. Lam ex Mold., Résumé 388, in syn. 1959 = *Teijsmanniodendron pteropodum* (Miq.) Bakh.
- Vitex philippinensis* Merr., Forest. Bur. Philip. Bull. 1: 52. 1903 = *Teijsmanniodendron pteropodum* (Miq.) Bakh.
- Vitex philippinensis* Merr. ex Mold., Résumé 388, in syn. 1959 = *Teijsmanniodendron pteropodum* (Miq.) Bakh.
- Vitex premnoides* Elm., Leaflet. Philip. Bot. 8: 2874. 1915 = *Mastixia premnoides* (Elm.) H. Hallier, *Mastixiaceae*
- Vitex pteropoda* Miq., Fl. Ind. Bat. Suppl. Sum. 242 & 567. 1862 = *Teijsmanniodendron pteropodum* (Miq.) Bakh.
- Vitex sarawakana* H. H. W. Pearson, Kew Bull. Misc. Inf. 1907: 60. 1907 = *Teijsmanniodendron sarawakanum* (H. H. W. Pearson) Kosterm.
- Vitex simplicifolia* C. B. Clarke in Hook. f., Fl. Brit. India 4: 586. 1885 = *Teijsmanniodendron hollrungii* (Warb.) Kosterm.
- Vitex smilacifolia* H. H. W. Pearson, Kew Bull. Misc. Inf. 1907: 159. 1907 = *Teijsmanniodendron smilacifolium* (H. H. W. Pearson) Kosterm.
- Vitex subspicata* Hall. f., Meded. Rijks Herb. Leid. 37: 52. 1918 = *Teijsmanniodendron subspicatum* (H. Hallier) Kosterm.
- Vitex tetragona* Hall. f., Meded. Rijks Herb. Leid. 37: 53. 1918 = *Teijsmanniodendron sarawakanum* (H. H. W. Pearson) Kosterm.
- Vitex tridentata* Menzies ex Mold., Phytologia 28: 465, in syn. 1974 = *Viola tridentata* Menzies, *Violaceae*
- Vitex venosa* H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 61. 1921 = *Teijsmanniodendron coriaceum* (C. B. Clarke) Kosterm.
- Vitex vinifera* Farnsworth, Pharmacog. Titles 5 (3): vii, sphalm. 1970 = *Vitis vinifera* L., *Vitaceae*
- Vitex zeylanica* Burm. f., Fl. Ind. 138. 1768 = *Stereospermum* sp., *Bigoniaceae*
- Wallrothia divaricata* Presl, Delic. Prag. 134. 1822 = *Carum alpinum* Benth. & Hook., *Ammiaceae*
- Wallrothia splendens* Spreng. ex Schult. in L., Syst. Veg. 6: 557. 1820 -- in the *Ammiaceae*
- Wallrothia tenuifolia* DC. = *W. splendens* Spreng., *Ammiaceae*
- Wallrothia tuberosa* Spreng., Pl. Min. Cog. Pugill. 2: 52. 1815 = *Carum alpinum* Benth. & Hook., *Ammiaceae*

VITEX ACUMINATA R. Br.

Additional synonymy: *Vitex melicarpa* Janssonius, Mikrogr. Holz. 812, sphalm. 1926.

Additional bibliography: Wall., Numer. List 86. 1831; D. Dietr., Syn. Pl. 3: 612. 1843; Voigt, Hort. Suburb. Calc. 473. 1845; Schau. in A. DC., Prodr. 11: 695. 1847; Buek, Gen. Spec. Syn. Candoll. 3: 501. 1858; R. Schomb., Fl. S. Austr. 52. 1875; Janssonius, Mikrogr. Holz. 812. 1926; Willaman & Schubert, Agr. Res. Serv. U. S. Dept. Agr. Tech. Bull. 1234: 237. 1961; Hocking, Excerpt. Bot. A.13: 569. 1968; Mold., Phytologia 16: 491. 1968; Mold., Biol. Abstr. 50: 942. 1969; Beard, West Austr. Pl., ed. 2, 113. 1970; Mold., Fifth Summ. 1: 349

(1971) and 2: 722 & 922. 1971; Serbanescu-Jitariu & Mitroiu, Act. Bot. Hort. Bucurest. 1972-73: 116. 1973; Mold., Phytologia 34: 280. 1976.

Dietrich (1843) describes this species as "foliolis ovato-oblongis acuminatis glabris integerrimis; paniculae rachi stricta; ramis dichotomis; calyce subdentulo; staminibus inclusis". Recent collectors describe it as a tall shrub, "deciduous shrub-tree", or "upright green tree", to 25 feet tall, the bark gray, flakey, the trunk 6 inches in diameter, usually with several branches from the base, and the fruit [immature?] green. They have encountered it in creekbeds with *Eucalyptus camalduensis*, in monsoon forests, and "rare growing against rocks", flowering and fruiting in February and March. The corollas are said to have been "mauve" in color on Swinbourne 686. A wood sample accompanies Perry 1052.

According to Bentham, *V. acuminata* usually has its petioles shorter than the leaflets, the petiolules being very short or to 1/4 inch long, and the flowers in a thyrsoid panicle, terminal or in the uppermost leaf-axils only. *Vitex glabrata*, on the other hand, has the petioles over 2 inches long, the petiolules always 1/2 to 3/4 inch long, and the flowers borne in loose, dichotomous, axillary cymes.

Serbanescu-Jitariu & Mitroiu (1973), based on *Herb. Mus. Bot. Haun.* 122 [Herb. Univ. Cluj 138426], describes the pollen of *V. acuminata* as follows: "subprolat; 3-colpat; vazut apical 20,8--36,4 mu in diam., din profil inalt 26--52 mu, lat 20,8--33,8 mu. Polenul scuturat din antere si vazut cu ochiul liber este galben-portocaliu, in apa la microscop, portocaliu, iar in chloralhidrat, verzui-incolor. In general prezinta caractere asemanatoare cu cele intilnite la *V. agnus castus* cu deosebirea ca sporoderma este mai subtire, iar veruculli mai mari. Colpii 3/4 din raza microsporilor, sint mai lungi si de asemenea mai ingusti si foarte ascutiti la capete".

Material of *V. acuminata* has been misidentified and distributed in some herbaria as *V. glabrata* R. Br. On the other hand, the *A. Cunningham* 256, cited previously by me as *V. acuminata*, actually represents *V. glabrata*.

Additional citations: AUSTRALIA: Northern Territory: *Byrnes* NB.556 (Ai--14365); *Schomburgk* s.n. [North Coast] (W--74072); *Swinbourne* 686 (Ai--10030). Queensland: *Helms* 122 (W--1271357); *R. A. Perry* 1052 (Ai).

VITEX AGELAEIFOLIA Mildbr. ex Pieper, Engl. Bot. Jahrb. 62, Beibl. 141: 55. 1928 [not *V. agelaeifolia* Mildbr., 1922, hyponym].

Additional bibliography: Good & Exell, Journ. Bot. 69, Suppl. 2: 144 & 145. 1930; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 402. 1938; Schnell & Grout de Beaufort, Mém. Inst. Fond. Afr. Noire 75: [Contrib. Étud. Pl. Myrmecod.] 9 & 45--47, pl. 10, fig. H--J. 1966; Mold., Phytologia 16: 491. 1968; Mold., Fifth Summ. 1: 225 & 231 (1971) and 2: 710 & 922. 1971.

Illustrations: Schnell & Grout de Beaufort, Mem. Inst. Fond. Afr. Noire 75: [Contrib. Étud. Pl. Myrmecod.] 47, pl. 10, fig. H--J. 1966.

Schnell & Grout de Beaufort (1966) describe the myrmecophily of this species and illustrate the nodal and internodal openings to the internal nests in the branches, based on *Jacques-Felix* 2307 from Cameroons,

Lebrun 1847 from Zaire, *Le Testu* 5892 & 5945 from Gabon, and *Le Testu* 7785 from Cameroons.

Good & Exell (1930) describe the species as "a climbing shrub, sporadic in abandoned native plantations", flowering and fruiting in January.

The *Vitex agelaeifolia* Mildbr. (1922) of Subgenus *Euvitex*, Section *Axillares*, Subsection *Paniculatae*, is a synonym of *V. phaseolifolia* Mildbr.

VITEX AGELAEIFOLIA var. *RUFULA* Mold.

Additional bibliography: Mold., *Phytologia* 16: 491. 1968; Mold., *Fifth Summ.* 1: 231 (1971) and 2: 710 & 922. 1971.

Additional citations: ZAIRE: *Germani* 5232 (E--2168604).

VITEX AGNUS-CASTUS L.

Additional & emended synonymy: *Vitex*, sive *Agnus Castus* Gerarde, *Herbal*, ed. 1, 3: 1387. 1597. *Agnus Castus* Cast. ex Schröd., *Pharm. Med.* 4: 10. 1649. *Elaeagnon Theophrasti* Lob. ex Schröd., *Pharm. Med.* 4: 10. 1649. *Salix Amerina* Dios., *Matth.* ex Schröd., *Pharm. Med.* 4: 10. 1649. *Vitex* Trag. ex Schröd., *Pharm. Med.* 4: 10. 1649. *Vitex foliis angustioribus cannabis modo dispositis* K. Bauhin ex Schröd., *Pharm. Med.* 4: 10. 1649. *Vitex, agnus castus* Lonicer. *Kreuterb.*, imp. 1, 77. 1679. *Vitex agnus castus* L., *Sp. Pl.*, ed. 1, imp. 1, 638. 1753. *Vitex agnus castus* Retz., *Nom. Bot.* 155. 1772. *Vitex agnuscastus* L. apud Gussone, *Fl. Sic. Prodr.* 2: 147. 1828. *Vitex agnes-castus* L. apud A. Wood, *Class-book*, [ed. 42], imp. 1, 539, sphalm. 1861. *Vitex agnus castus* var. *agnus castus* Kurz, *Forest Fl. Brit. Burma* 2: 270. 1877. *Vites agnus castus* L. apud B. Fedtsch. in O. A. & B. A. Fedtsch., *Consp. Fl. Turkest.* 5: 122, sphalm. 1913. *Vitex agnus castus* Al-Rawi & Chakvavarty, *Iraq Min. Agr. Tech. Bull.* 15: 4, sphalm. 1964. *Vitex agnus-castur* Coon, *Fragrances Frag. Pl.* 117, sphalm. 1967. *Vitex agnus-castus* var. *agnus-castus* [L.] apud Burlage, *Ind. Pl. Tex.* 184. 1968. *Vitex agnucastus* Farnsworth, *Pharmacog. Titles* 5 (10): xxiv, sphalm. 1970. *Vitex carone* Bircher ex Mold., *Phytologia* 28: 465, in syn. 1974. *Vitex ilensis* Runkewitz ex Mold., *Phytologia* 28: 465, in syn. 1974. *Vitex negundo* Hausskn. ex Mold., *Phytologia* 31: 412, in syn. 1975 [not *V. negundo* Curtis, 1832, nor L., 1753, nor L. f., 1966, nor Lour., 1934, nor "(not L.) Matsum.", 1955, nor Noronha, 1790, nor Roxb., 1977, nor Royle, 1919, nor Willd., 1918]. *Vitex agnus-castus* var. *agnus-castus* Thomas ex Mold., *Phytologia* 34: 279, in syn. 1976. *Vitex agnus-catus* Lewis & Elvin-Lewis, *Med. Bot.* 332, sphalm. 1977. *Vitex angus-castus* var. *angus-castus* [L.], in herb.

Additional & emended bibliography: Nicolaus in Mesue, *Canon. Univ. leaf* 328 recto. 1510; Bartholom. *Angl.* [transl. Trevisa], *Barthol. Propriet. Rer.* 1535; Camus, *Achemin. Devot.* 286. 1624; Camus, *Homel. Festiv.* 201. 1625; Cast., *Hort. Mess.* 24. 1640; J. Schröd., *Pharm. Med.* 4: 10. 1649; Coles, *Adam Eden.* 1657; Lonicer, *Kreuterb.*, imp. 1, 77. 1679; Cup., *Hort. Cath.* 4. 1696; Cup., *Hort. Cath. Suppl. Alt.* 6, 1697; Culpepper, *Engl. Physit. Enlarg.* 1681; Rivin., *Introd. Gen. Rem. Herb. Ord. Pl. Irreg. Monop.* [26]. 1690; Blackwell, *Cur. Herb.* 1: pl.

139. 1751; Chomel, Abreg. Hist. Pl. Usuel., ed. 2, vol. 1-3. 1761; L., Sp. Pl., ed. 2, 890. 1763; Hasselq., Voy. Trav. Levant 280 & 282. 1766; [Retz.], Nom. Bot. 155. 1772; Ginanni, Istor. Civ. Nat. Pinet. Ravenn. 251. 1774; Lam., Fl. Franc. 2: 363. 1778; Plenck., Icon. Pl. Med. 6: 13, pl. 510. 1778; All., Fl. Ped. 1: 124. 1783; Gaertn., Fruct. Sem. Pl. 1: 269, pl. 56. 1788; Lam., Encycl. Meth. Bot. 2: 611--613. 1788; Ucria, Hort. Reg. Panhorm. 266. 1789; Poir. in Lam., Tabl. Encycl. Meth. Bot. 6: pl. 541. 1794; Russell, Nat. Hist. Aleppo, ed. 2, 2: 256. 1794; Gmel. in L., Syst. Nat., ed. 13, 2: 963. 1796; Salisb., Prodr. 106. 1796; Raeusch., Nom. Bot., ed. 3, 182. 1797; Balbis, Cat. Pl. Hort. Bot. Taur. 49. 1804; Desf., Tabl. Ecol. Bot., ed. 1, 53. 1804; Sibth. & Sm., Fl. Graec. Prodr. 1: 441. 1809; Willd., Enum. Pl. Hort. Berol. 2: 660. 1809; Stokes, Bot. Mat. Med. 3: 413. 1812; Balbis, Cat. Stirp. Hort. Acad. Taur. 81. 1813; Desf., Tabl. Ecol. Bot., ed. 2, 64. 1815; Dierbach, Handb. Med. Pharm. Bot. 267, 461, & [463]. 1819; Pers., Sp. Pl. 3: 360. 1819; A. Rich., Bot. Méd. 1: 243. 1823; Dierbach, Arzneim. Hippok. 1824; A. Rich. [transl. G. Kunze], Med. Bot. 1: 382--383. 1824; Spreng. in L., Syst. Veg., ed. 16, 2: 759. 1825; A. Rich. [transl. G. Kunze], Med. Bot. 2: 1302. 1826; Sweet, Hort. Brit., ed. 1, 1: 323. 1826; Gussone, Fl. Sic. Prod. 2: 147--148. 1828; G. Don in Loud., Hort. Brit., ed. 1, 246. 1830; Sibth. & Sm., Fl. Graec. 7: pl. 609. 1830; Sweet, Hort. Brit., ed. 2, 416. 1830; Bischoff, Grundr. Med. Bot. 305. 1831; Tenore, Syll. Fl. Nap. 86. 1831; Tenore, Syll. Vasc. Pl. 298. 1831; G. Don in Loud., Hort. Brit., ed. 2, 246. 1832; Loud., Hort. Brit., ed. 2, 551. 1832; Mohl, Ann. Sci. Nat., ser. 2, 3: 319. 1835; A. Dietr., Handb. Pharmaceut. Bot. 113 & 413. 1837; A. Dietr., Taschenb. Ausländ. Arzneigew. 221 & 324. 1839; G. Don in Loud., Hort. Brit., ed. 3, 246. 1839; Sweet, Hort. Brit., ed. 3, 551. 1839; Meisn., Pl. Vasc. Gen. 2: 201. 1840; Spach, Hist. Nat. Veg. Phan. 9: 230--231. 1840; Bouchez, Nouv. Corses 95. 1843; D. Dietr., Syn. Pl. 3: 612. 1843; Bertol., Fl. Ital. 6: 455. 1844; Gussone, Fl. Sic. Syn. 2: 110. 1844; Schau. in A. DC., Prodr. 11: 684. 1847; Wackernagel, Vocab. Optim. 49. 1847; Bussemak. & Daremb., Oeuvres d'Oribase 1--6. 1851-1876; Plinius Sec. [transl. Bostock & Riley], Nat. Hist. vol. 1--6. 1865; Schnitzl., Iconogr. Fam. Nat. 2: 137 Verbenac. [2]. 1856; Buek, Gen. Spec. Syn. Candoll. 3: 501. 1858; Reichenb., Icon. Fl. Germ. 18: 52--53, pl. 1293. 1858; Moris, Fl. Sard. 3: 343. 1859; Tornabene, Atti Accad. Gioena Sci. Nat. Catania, ser. 2, 16: [Fl. Foss. Etna] 119, pl. 3A¹. 1859; Dupuis, Nouv. Fl. Usuel. Med. 2: 298, pl. 37, fig. 2. 1860; A. Wood, Class-book, [ed. 42], imp. 1, 539. 1861; Rosenth., Syn. Pl. Diaph. 1862; A. Gray, Man. Bot. North. U. S., ed. 3, lxvii (1862) and ed. 4, imp. 1, lxvii. 1863; Bocq., Adansonia, ser. 1, 2: pl. 6. 1863; A. Wood, Class-book, [ed. 42], imp. 2, 539. 1863; A. Gray, Man. Bot. North. U. S., ed. 4, imp. 2, lxvii. 1864; A. Wood, Class-book, [ed. 42], imp. 3, 539 (1865), [ed. 42], imp. 4, 539 (1867), and [ed. 42], imp. 5, 539. 1868; A. Gray, Field For. Gard. Bot., ed. 1, imp. 1, 243 (1868) and ed. 1, imp. 2, 243. 1869; A. Wood, Class-book, [ed. 42], imp. 6, 539 (1869) and [ed. 42], imp. 7, 539. 1870; A. Gray, Man. Bot. North. U. S., ed. 4, imp. 3, lxvii. 1870; Willkomm & Lange, Prod. Fl. Hisp. 2: 389. 1870; A. Wood, Am. Bot. Flor., ed. 1, imp. 1, 237 (1870) and ed. 1, imp. 2,

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[to be continued]